



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/196,064	11/19/1998	HARM J. W. BELT	PHN16.638	8724
24737	7590	03/17/2005	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			LAO, LUN S	
			ART UNIT	PAPER NUMBER
			2643	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/196,064	Applicant(s) BELT ET AL.	
	Examiner Lun-See Lao	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This action is response to amendment filed on 02-24-2005. Claim 10 has been amended and claims 1-11 are pending.

Claim Objections

2. Claim 5 is objected to because of the following informalities: claim 5 recites "disjunct" on amendment page 4 line 2, which appears to be—disjunctive--. Appropriate correction is required.

3. Claim 11 is objected to because of the following informalities: claim 11 recites "disjunct" on amendment page 6 line 2, which appears to be—disjunctive--. Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2643

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2-4, 8-9 and US Patent Application of No. 09/310,086. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Consider claims, 1, 8 and 10 substantially all the claimed steps were claimed in the patent identified above, such as the steps of : " a plurality of audio sources generating a plurality of input audio signals;

a processor comprising a scaling means for weighting the plurality of input signals and deriving a plurality of a processed audio signals from the plurality of input audio signals without delay values; and

a combiner that derives a combined audio signal from the plurality of processed audio signals;

controller that causes the processor to maximize a power measure of the combined audio signal, wherein the controller is arranged to limit a combined power gain measure of the processed audio signals to a predetermined value without measuring an energy

Art Unit: 2643

transfer at each site where one respective audio source of the plurality of audio sources receives the input audio signals" (see Application No:09/310,086 amendment filed on 11/24/2004, claim 2,3,and 8-9 page 2-4).

Consider claim 4 substantially all the claimed steps were claimed in the patent identified above, such as the steps of : " the audio processing arrangement comprises delay elements for compensating a delay difference of a common audio signal present in the input audio signals" (see Application No:09/310,086 amendment filed on 11/24/2004, claim 4 page 3 lines 15-18).

Because claims 1-11 of US patent application 09/196,064 are similar in scope to claims 2-4 and 8-9 of the US patent application 09/310,086 with obvious wording variation, there are both describing an array of electromagnetic transducer assemblies supported by audio processing and controller.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5, 7-10, are rejected under 35 U.S.C. 102(b) as being anticipated by Kaneda (US PAT. 5,208,864).

Consider claim 1, Kaneda teaches an audio arrangement for that utilizes an energy transfer function for delay compensation, said arrangement comprising:

a plurality (see fig.12, (51)) of audio sources generating a plurality of input audio signals;

a processor ($53_1 - 53_m$) comprising a scaling means (equations 2 and 3) for weighting the plurality of input signals and deriving a plurality of a processed audio signals from the plurality of input audio signals without delay values (see col.8 lines 10-37); and

a combiner (see fig.12, 55)) that derives a combined audio signal from the plurality of processed audio signals;

controller (54) that causes the processor to maximize (by minimizing a power of the noise equal to 0 and then the speech signal becomes maximizing and see col.7 line58-col.8 line 35) a power measure (equation 2 and 3) of the combined audio signal, wherein the controller (54) is arranged to limit a combined power gain measure of the processed audio signals to a predetermined value without measuring ($U1-U_m$) an energy transfer at each site where one respective audio source of the plurality of audio sources receives the input audio signals (see col.7 line 43-col.9 line 24).

Consider claim 2, Kaneda discloses that audio processing arrangement wherein the processor includes a scaling means ($53_1 - 53_m$) for scaling the input audio signals with a scaling factor (equations 2 and 3) for obtaining the processed audio signal (4),

Art Unit: 2643

said controller (54) includes a further scaling means($53_1 - 53_m$) for deriving a plurality of scaled combined audio signals (55) with a scaling factor (equations 2 and 3) corresponding to the scaling factor (equations 2 and 3)of the scaling means($53_1 - 53_m$) , and in that the controller (5) is arranged for maximizing(by minimizing a power of the noise equal to 0 and then the speech signal becomes maximizing and see col.7 line58-col.8 line 35) power measure (equations 2 and 3) of the combined (55) audio signal, and for limiting a combined (55) power gain measure of the processed audio signals by minimizing a difference between the input audio signals and the scaled combined audio signals corresponding to said audio signals (see col.7 line 43-col.8 line 55).

Consider claim 3, Kaneda teaches that the audio processing arrangement wherein the processor ($53_1 - 53_m$) includes a plurality of adjustable filters ($53_1 - 53_m$) for deriving the processed audio signal, in that the controller (5) includes a plurality of further adjustable filters ($53_1 - 53_m$) having a transfer function being the conjugate of the transfer function of the adjustable filters ($53_1 - 53_m$), said further adjustable filters ($53_1 - 53_m$) being arranged for deriving from the combined (55) audio signal filtered combined audio signals, and in that the controller is arranged for maximizing (by minimizing a power of the noise equal to 0 and then the speech signal becomes maximizing and see col.7 line58-col.8 line 35) the power measure of the combined audio signal, and for restricting a combined power gain measure (equations 2 and 3) of the processed audio signals to a predetermined value by controlling the transfer functions of the adjustable filters($53_1 - 53_m$) and the further adjustable filters($53_1 - 53_m$) in order to minimize a difference measure between the input audio signals and the

Art Unit: 2643

filtered combined audio signal corresponding to say input audio signals (see col.7 line 43-col.9 line 24).

Consider claims 5 and 7 Kaneda teaches the audio processing arrangement of the audio sources comprise a plurality of microphones (see fig.12, (51)), and in that the microphones are placed in a position such that their directionality patterns are substantially disjunct (51); and the audio processing arrangement of the audio sources comprise a plurality of microphones being placed in a linear array (see fig.12 (51) and col.7 line 43-col.8 line 55).

Consider claim 8 Kaneda teaches an audio signal processing arrangement that utilizes an energy transfer function for delay compensation, said arrangement comprising a plurality of inputs (see fig.12, (51))) for receiving input audio signals, processing means ($53_1 - 53_m$) for deriving processed audio signals including scaling means (see equation 2-3) for scaling the input audio signal without delay values, the audio processing arrangement comprising combining means (9) for deriving a combined audio signal from the processed audio signals (4), the audio processing arrangement comprises a control means (54) for controlling the processing means ($53_1 - 53_m$) in order to maximize (by minimizing a power of the noise equal to 0 and then the speech signal becomes maximizing and see col.7 line 58-col.8 line 35) a power measure of the combined audio signal, and in that the control means (54) are arranged for limiting a combined power gain measure of the processed audio signals to a predetermined value without measuring an energy transfer at each site where each respective one the

Art Unit: 2643

plurality of audio sources receives the input audio signals (see fig.12 and see col.7 line 43-col.9 line 24).

Consider claim 10, there is a method claim corresponding to apparatus claim 8.

See previous apparatus claim 8 rejection.

Consider claim 9, Kaneda discloses that the audio signal processing arrangement the scaling means (see fig.12, 53₁ –53_m) scale the input audio signals with a scaling factor (see equation 2-3) for obtaining the processed audio signals, said control means (54) comprise further scaling means (53₁ –53_m) for deriving a plurality of scaled combined audio signals (55) with a scaling factor (see equation 2-3) corresponding to the scaling factor of the scaling means (53₁ –53_m), and in that the control means (5e) are arranged for maximizing (by minimizing a power of the noise equal to 0 and then the speech signal becomes maximizing and see col.7 line 58-col.8 line 35) a power measure of the combined audio signal, and for limiting a combined (55) power gain measure of the processed audio signals by minimizing a difference between the input audio signals and the scaled combined audio signals (see fig.12 and see col.7 line 43-col.9 line 24).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2643

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Kaneda (US PAT. 5,208,864) in view of Kellermann (US PAT 5,602,962).

Consider claim 4 Kaneda does not clearly teach the audio processing arrangement comprises delay elements for compensating a delay difference of a common audio signal present in the input audio signals.

However, Kellermann teaches the audio processing arrangement comprises delay elements (see fig.1, #2) for compensating a delay difference of a common audio signal present in the input audio signals (see col.3 line 18-60).

Therefore, it would obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Kellermann in to Kaneda to provide an improved reduction of noise components of the microphone signals is achieved and the audibility of speech is further improved.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneda (US PAT. 5,208,864) in view of Kaneda (US PAT 4,536,887).

Consider claim 6, Kaneda(864) does not teach clearly the audio processing arrangement of the microphones are placed around a center position at angles being equal to 360 degrees divided by the number of microphones.

However, Kaneda (887) discloses that the audio processing arrangement includes that the microphones are placed around a center position at angles being equal to 360 degrees divided by the number of microphones (see fig.21d and col.20 line 10-col.21 line 20).

Therefore, it would obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Kaneda (887) into teaching of Kaneda (864) to provide microphone-array apparatus which can be constructed on a small scale and permits adaptive selection of the desired signal for varied positions of a desired signal and noise sources.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Kaneda (US PAT. 5,208,864) in view of Anderson (US PAT 6,137,887).

Consider claim 11, Kaneda teaches the audio processing arrangement of further comprising a plurality of microphones having disjunct directionality patterns, wherein the audio signals are obtained from said plurality of microphones (see fig.12 (51)), but Kaneda fails to teach the microphone receiving a strongest speech signal is automatically emphasized.

However, Anderson teaches the microphone receiving a strongest speech signal is automatically emphasized ((greater than 9.5 db), see fig.3c and col.9 lines 5-53).

Therefore, it would obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of teaching into Kaneda of Anderson to provide an improved multiple-microphone audio system that identifies which microphone of a plurality of microphones best detects an audio source.

Response to Arguments

12. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kanamori (US PAT. 5,058,170) is recited to show how other related the audio processing arrangement with multiple sources.

14. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
(703305-2259)


DUC NGUYEN
PRIMARY EXAMINER